

**OPERATION OF THE PHENIX-MUID PANEL
GAS SYSTEM IN BUILDING 905**

Text Pages 1 through 3

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
<u>1</u>	<u>5/26/98</u>	<u>1</u>	<u>KFR</u>
<u>2</u>	<u>6/4/98</u>	<u>2</u>	<u>KFR</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

Revision No. A
WJM

Date: 4/7/98

Prepared by:

Ken Reed

PHENIX Safety Approval:

W. Mc Gowan

ES&H Approval:

John E. H.

REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	CURRENT OVERSIGHT
A	First Issue	4/7/1998	n/a	K. Read, W. McCabe, A. Etkin	n/a
RETIRED	Work described in document completed.	3/11/2007	n/a	D. Lynch, R. Pisani, P. Giannotti	R. Pisani

1.0 Purpose and Scope

This procedure provides instruction for starting up and shutting down of the gas system at a PHENIX-MUID table panel assembly area in building 905. It specifies which procedure can or can not be performed in unattended mode.

or at a small panel QA area
in the Bldg. 902 Annex.

2.0 Responsibilities

- 2.1 Operator is responsible for conducting the procedures and logging of the gas and the high voltage operation.

3.0 Prerequisites

- 3.1 Operator shall have completed BNL compressed gas and electrical safety training.
- 3.2 Operator shall be designated as being cognizant of proper operating practices by the technical supervisor.
- 3.3 The safety bubblers shall be visually inspected before starting gas flow.
- 3.4 The relief valve in the system shall be certified by S&EP for its proper relief pressure.
- 3.5 The CO2 bottle cart shall be secured to the assembly table with a chain so that it can not fall over.

4.0 Precautions

- 4.1 All of the high voltage supplies shall be turned off prior to entering the QA area.

5.0 Procedure

- 5.1 Fill the tubes with CO2 for panel gas circuit leak test.

Note: Procedure 5.1 may be performed at the tube stacking area (located near but outside the barricaded QA area) as well as at any one of the four assembly tables.

- 5.1.1 Operator shall verify that all flow meters are closed.
- 5.1.2 Operator shall open the valve on the CO2 bottle.
- 5.1.3 Operator shall set the CO2 regulator output gauge to 10 PSI.
- 5.1.4 Operator shall open the appropriate input flow meters for the selected set of gas circuits.
- 5.1.5 Operator shall switch the gas circuit-return valves to direct flow to the appropriate manometers.
- 5.1.6 Operator shall verify pressure increase on all selected manometers.
- 5.1.7 Operator shall take the following steps to pressurize all selected manometers when pressure increase is not verified on some of the manometers.
 - 5.1.7.1 Operator shall open the valve on the input flow meter for the problem chain. If it does not show any flow, operator shall give a tap on the bottom of the flow meter to let the float show the proper flow rate.
 - 5.1.7.2 Operator shall set the gas circuit -return valve for the problem gas circuit to the manometer.
 - 5.1.7.3 If both operations do not fix the problem, operator shall tighten all connections and repeat the procedure 5.1.9.1 and 5.1.9.2.

5.1.8 Once the pressure reaches 30 cm H₂O, operator shall close all of the input flowmeters and allow a hold time of 3 hours to elapse.

Note: For the remaining duration of the leak test (hold time) attended mode shall not be required.

5.1.9 At the end of the hold time, operator shall record the manometer reading.

5.1.10 Operator shall set the gas circuit-return valves to vent.

5.1.11 Operator shall close the valve on the CO₂ bottle.

5.2 Flush the tubes with CO₂ (see note below)

Note: Attended mode shall not be required for this procedure.

5.2.1 Operator shall follow procedure 5.1.1 – 5.1.4 to prepare flowing CO₂.

5.2.2 Operator shall switch the gas circuit-return valves to direct flow to the appropriate bubblers for venting.

5.2.3 If a chain does not show flow at the output bubbler, a leak was created. Operator shall locate the leak with a CO₂ sensitive sniffer and fix the leak.

5.2.4 After 12 hours of gas flushing, operator shall close the master inlet knob.

5.2.5 Operator shall close the the valves on the input flow meters.

5.2.6 Operator shall close the valve on the CO₂ bottle.

5.2.7 Operator shall set the gas-circuit return valves to "closed position."

5.3 Bottle change procedure

5.3.1 Operator shall close the valve on the gas bottle.

5.3.2 Operator shall close the regulator output valve.

5.3.3 Operator shall set all gas circuit return valves to the vent position.

5.3.4 Operator shall close all flow meter valves.

5.3.5 Operator shall disconnect the regulator from the gas bottle to be exchanged (empty bottle).

5.3.6 Operator shall put the original bottle cap on the empty bottle.

5.3.7 Operator shall label the empty bottle "Empty".

5.3.8 Operator shall carry in a new bottle with a bottle cap on a gas bottle carrier.

5.3.9 Operator shall exchange the bottles.

5.3.10 Operator shall secure the bottle with a chain on the portable bottle stand.

5.3.11 Operator shall take off the bottle cap from the new bottle and save it.

5.3.12 Operator shall attach the regulator on the new gas bottle.

5.3.13 Operator shall open the valve on the bottle slightly and check to see if there is any leak at the regulator joint just screwed on using snoop. In case of leak, operator shall fix the leak by tightening the screw.

5.3.14 Operator shall close the valve on the new bottle.

5.3.15 Operator shall label the new bottle "In Use".

5.3.16 Operator shall carry out the empty bottle on a gas bottle carrier to store it in the empty bottle storage.

1 2: Procedure 5.2 may be performed at the tube stacking area using either CO₂ or N₂. IF N₂ is used, venting into the room at low flow rates is permitted.

Revision A
1998

5.6 Shutdown procedure

- 5.6.1 Operator shall follow steps 5.3.1 to 5.3.5 of the procedure "Operation of the PHENIX MuID Panel HV System in Building 905" to shut down the HV system.
- 5.6.2 Operator shall close the valve on the gas bottle. .
- 5.6.3 Operator shall close all flowmeter valves all the way.
- 5.6.4 Operator shall set all 5 gas-circuit return valves to vent position.

6.0 Documentation

- 6.1 Documentation shall be kept in the System Operator's Logbook in Building 905.

7.0 References

- 7.1 All the PHENIX MUID construction procedure documents can be found through PHENIX MUID Factory WEB page <http://riksg01.rhic.bnl.gov/muid/>. A hardcopy of those documents are also kept in the specific work areas in building 905.